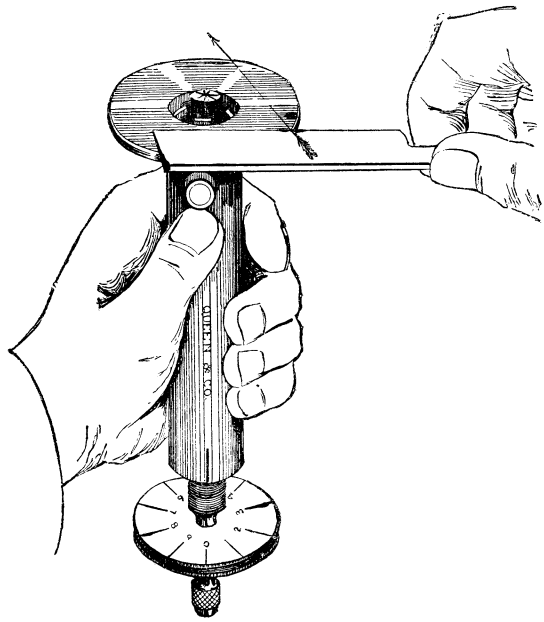
A NEW SECTION INSTRUMENT FOR VEGETABLE MATERIALS.

By Edson S. Bastin.

As a simple and inexpensive but efficient instrument for cutting sections both of imbedded and unimbedded material, and particularly of hard tissues, seemed a desideratum, Mr. Pennock, the optician of Queen & Co., and the writer got their heads together and devised the one illustrated in the accompanying cut.



It consists of a tube of brass, nickeled, which serves as a well, and is long enough to be conveniently held in the hand. At the top of the tube is a circular plate, also nickeled and well polished, so as to form a hard and smooth surface, over which the razor

blade is to move, and at the lower end of the tube is a fine-threaded screw, by means of which the object to be sectioned is raised. The large head of the screw is graduated, and there is an index line on the lower end of the tube so that the thickness of the section may be nicely regulated. So far the instrument presents nothing novel; it is not materially different from several others in common use. The feature in this one, which, in our opinion, especially commends it for the work of the botanist, is the mechanism by means of which the object to be sectioned is changed.

There is an interior tube closed at the bottom, and open about a third of the way around on one side. This tube nicely fits on the inside of the main tube, and in the side opposite the slit works the clamp-screw, which passes through a slit in the wall of the outer tube. As the micrometer screw at the bottom acts upon the closed end of the inner tube to raise it, the clamp-screw slides in the outer tube.

This arrangement, it will be seen, enables the stem, or root, or material of whatever sort of which sections are to be made, to be clamped tightly against the wall of the outer tube, and to slide along its smooth surface as the inner tube is raised by the micrometer screw. Since, also, in cutting, the object is raised above the sharp edge of the well only the thickness of the section to be cut, there can be no yielding, and thin even sections of most sorts of material may readily be obtained. With hard tissues, such as woody stems and roots, specially good results are obtained, but its advantages are scarcely less for softer tissues.

The well is large enough to take material of considerable size, and to allow of the convenient manipulation of small objects that require to be supported between pieces of pith, cork or paraffin.

Sections of imbedded material may also be cut with as much accuracy by means of it as can be obtained by most of the far more expensive microtomes.

The knife employed is a razor, not too thin bladed, ground flat on one side. It is operated by pushing the blade, flat side downward, of course, over the plate, as shown in the figure.